Claims:

1. A method for imaging dysfunctional vascular endothelium in a vessel of interest in an individual comprising:

-injecting the individual with microbubbles; and
-performing transcutaneous imaging of the vessel of interest using a low mechanical index pulse sequence, wherein the retention of microbubbles in the vessel indicates dysfunctional vascular endothelium.

2. The method of claim 1, wherein the low mechanical index is about 0.03 to about 0.4.

3. The method of claim 2, wherein the low mechanical index is about 0.05 to about 0.3.

4. The method of claim 1, wherein the vessel of interest is an artery.

5. The method of claim 4, wherein the artery is a carotid artery.

6. The method of claim 1, wherein the microbubbles comprise one or more proteins, polymer materials, carbohydrates, lipids, phospholipids or surfactants.

7. The method of claim 6, wherein the protein is albumin, apotransferrin, urease, alpha-1-antitrypsin, alpha fetoprotein, aminotransferases, amylase, C-reactive protein, carcinoembryonic antigen, ceruloplasmin, complement, creatine phosphokinase, ferritin, fibrinogen, fibrin, transpeptidase, gastrin, serum globulins, hemoglobin, myoglobin, immunoglobulins, lactate dehydrogenase, lipase, lipoproteins, acid phosphatase, alkaline phosphatase, alpha-1-serum protein fraction, alpha-2 serum protein fraction, beta protein fraction, gamma protein fraction, gamma-glutamyl transferase, or gelatin.

8. The method of claim 7, wherein the protein is albumin.

9. The method of claim 6, wherein the polymer is a biodegradable polymer.

10. The method of claim 6, wherein the carbohydrate is a hexose; disaccharide; pentose; alpha-, beta-, or gamma-cyclodextrin; polysaccharide or sugar alcohol.

11. The method of claim 6, wherein the phospholipids is lecithin, a lecithin derivative, a phosphatidic acid; a phosphatidylethanolamine; a phosphatidylserine; a phosphatidylglycerol; a phosphatidylinositol; cardiolipin; or a sphingomyelin.

12. The method of claim 6, wherein the surfactant is a fatty acid, a fluorine-containing phospholipid, a polyethylene glycol, a block copolymer surfactant, phosphatidylserine, phosphatidylglycerol, phosphatidylinositol, phosphatidic acid or cardiolipin.

13. The method of claim 1, wherein the microbubbles comprise a gas.

14. The method of claim 13, wherein the gas is air, nitrogen, oxygen, carbon dioxide, hydrogen, helium, argon, neon, xenon or krypton, or a halogenated hydrocarbon.

15. The method of claim 14, wherein the halogenated hydrocarbon is perfluoromethane, perfluoroethane, perfluoropropane, perfluorobutane, perfluoropentane, perfluorohexane, perfluoroheptane; perfluoropropene, perfluorobutenes, perfluorobutadiene, perfluoropentene, perfluorocyclobutane, perfluoromethylcyclobutane, perfluorodimethylcyclobutane, perfluorotrimethylcyclobutane, perfluorocyclopentane, perfluoromethylcyclopentane, perfluorodimethylcyclopentans, perfluorocyclohexane, perfluoromethylcyclohexane or perfluorocycloheptane.

16. The method of claim 1, wherein the microbubbles consist essentially of albumin, an aqueous sugar solution and a perfluorocarbon gas.

17. The method of claim 16, wherein the sugar is glucose, galactose, fructose, sucrose, lactose, maltose, amylase, dextran or mixtures thereof.

18. The method of claim 17, wherein the sugar is dextrose.

19. The method of claim 16, wherein the perfluorocarbon gas is perfluoromethane, perfluoroethane, perfluoropropane, perfluorobutane or decafluorobutane or mixtures thereof.

20. The method of claim 16, wherein the microbubbles comprise one to five parts albumin to one to five parts dextrose.

21. The method of claim 16, wherein the albumin, sugar and perfluorocarbon gas are sonicated to form the microbubbles.

22. The method of claim 1, wherein the microbubbles are about 2.0 to about 8.0 microns in diameter.

23. The method of claim 22, wherein the microbubbles are about 4.0 to about 6.0 microns in diameter.

24. The method of claim 1, wherein a frequency of the low mechanical index pulse sequence is about 1.5 to about 15.

25. The method of claim 1, wherein the low mechanical index pulse sequence is performed with a frame rate of about 20 to 30 Hz.

26. A method for imaging vascular endothelium in an artery in an individual comprising:

-injecting the individual with microbubbles consisting essentially of albumin, an aqueous sugar solution and a perfluorocarbon gas; and
-performing transcutaneous imaging of the vessel of interest using a pulse sequence with a mechanical index of about 0.03 to about 0.4, wherein the retention of microbubbles in the vessel indicates dysfunctional vascular endothelium.

27. The method of claim 26, wherein the low mechanical index is about 0.05 to about 0.3.

28. The method of claim 26, wherein the vessel of interest is an artery.

29. The method of claim 26, wherein the sugar is glucose, galactose, fructose, sucrose, lactose, maltose, amylase, dextran or mixtures thereof.

30. The method of claim 29, wherein the sugar is dextrose.

31. The method of claim 26, wherein the perfluorocarbon gas is perfluoromethane, perfluoroethane, perfluoropropane, perfluorobutane or decafluorobutane or mixtures thereof.

32. The method of claim 26, wherein the microbubbles comprise one to five parts albumin to one to five parts dextrose.

33. The method of claim 26, wherein the albumin, sugar and perfluorocarbon gas are sonicated to form the microbubbles.

34. The method of claim 26, wherein the microbubbles are about 2.0 to about 8.0 microns in diameter.

35. The method of claim 34, wherein the microbubbles are about 4.0 to about 6.0 microns in diameter.

36. The method of claim 26, wherein a frequency of the low mechanical index pulse sequence is about 1.5 to about 15.

37. The method of claim 26, wherein the low mechanical index pulse sequence is performed with a frame rate of about 20 to 30 Hz.